\$EPA

POTENTIAL HAZARDOUS WASTE SITE **PRELIMINARY ASSESSMENT** PART 1 - SITE INFORMATION AND ASSESSMENT

	FICATION
OI STATE	02 SITE NUMBER
Iτι	3890008946

IL SITE NAME AND LOCATION				
Laboratory-Illinois (ANL-IL)	nal los sime	ET, NOUTE NO., OR	SPÉCIFIC LOCATION IDENTIFIER	——————————————————————————————————————
Building 330, CP-5		00 South C	ass Avenue	
as any	04 STATE	E OS ZIP CODE	06 COUNTY	07COUNTY 08 CON- CODE DIST
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U.S. Department of Energy (DOE-CH)	9	9800 South	Cass Avenue	
03 (217	04 STAT	E OS ZIP COOE	04 TELEPHONE NUMBER	
Argonne	IL	60439	(312) 972-2271	
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Argonne National Laboratory	1 9	9700 South	Cass Avenue	
OB CITY '	TOSTAT	E 11 ZP CODE	12 TELEPHONE NUMBER	Aubrey Smith
Argonne	IL	60439	(312) 972-3998	Aubrey Smith Envir. Comp
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There is a potential for contamination There is a continuing emission of tridecommissioning.	n of grou	ndwater ar ter vapor	nd soil with rad to the atmosphe	lioactivity. ere pending
V. PRIORITY ASSESSMENT				
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			fety Division	1312 972-22
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C. L. Cheever DOE	A	NL-IL	'312' 972-33	1 1 1 0

EPAFORM 2070-12 (7-61)





POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT **PART 2-WASTE INFORMATION**

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	S OF INFORMATION «			reports (<u> </u>		
71 777	T						

- (1) 1986 Annual Site Environmental Report for Argonne National Laboratory (Report #ANL-87-9) (3) 1988 Inventory of Federal Hazardous Waste Activities (for ANL-IL)
- (28) Environmental Assessment Related to the Decontamination and Decommissioning of the Argonne National Laboratory CP-5 Research Reactor; by ANL-IL, January 1982,p1-3

 $^{^{*1,100}}$ tons of radioactive waste are estimated to result from decommissioning activities.

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POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

L IDENTIFICATION			
OI STATE	OZ EITE NUMBER		
II.	3890008946		

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CONTINUATION SHEET

Part 3 - Description of Hazardous Conditions and Incidents

ANL-IL IL 3890008946

Building 330, CP-5

II. 01A Groundwater Contamination

There is a potential for groundwater contamination from stored radioactive items. Groundwater in some of the ANL-IL area is in the perched condition because of the underlying silty clay. This clay can restrict downward water flow and create a lateral perched water-flow condition. The groundwater pattern in the area would probably follow the area topography, flowing southeasterly toward the Des Plaines River. Contaminated water may percolate downward into the perched groundwater and migrate in a southeasterly direction offsite. (Ref. (5), p.2)

Population = 3,000 employees + 25,000 residents within three miles and north of the Des Plaines River.

II. 01 G Drinking Water Contamination

There is a potential for radioactivity to migrate to groundwater and to the drinking-water aquifer. There has not been recognizable contamination of ANL-IL drinking water from this source.

In the vicinity of ANL-IL, only subsurface water (from both shallow and deep aquifers) and Lake Michigan water are used for drinking purposes. The potential for contamination of groundwater used for drinking purposes does exist. Two principal aquifers are used as water supplies in the vicinity of ANL-IL. The upper aquifer is the Niagaran-Alexandrian dolomite, which is about 200-ft. thick in the ANL-IL area and has a piezometric surface between 50 and 100 ft. below the ground surface. The lower aquifer is the Galesville sandstone which lies between 490 and 1500 ft. below the surface. Maquoketa shale separates the aquifers and retards hydraulic connection between the aquifers.

The four domestic water wells currently in use at ANL-IL are about 300-ft. deep in the Niagaran dolomite. All four wells are located northeast of the site. The nearest well is approximately 4500 ft. northeast of the site. Together the four wells serve the more than 3,000 employees of the facility.

Population = 3,000 employees plus 25,000 residents within three miles and north of the Des Plaines River.

(Ref. (1) p. 8,12; Ref. (3) p. 6; Ref. (5) p. 1-2)

SEPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT PART 3 DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENT.

I. IDENTIFICATION
O1 STATE O2 SITE NUMBER
IL 3890008946

PART 3 - DESCRIPTION OF HAZ	ARDOUS CONDITIONS AND INCIDENTS		VVVV 10
II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)			
01: J. DAMAGE TO FLORA 04 PASCRATIVE DESCRIPTION	02 OBSERVED (DATE:)	D POTENTIAL	☐ ALLEGED
01 1 K. DAMAGE TO FAUNA (14 NATIRATIVE DESCRIPTION (Include name(s) of species)	02 D OBSERVED (DATE:)	☐ POTENTIAL	□ ALLEGED
01 L. CONTAMINATION OF FOOD CHAIN U4 NATHATIVE DESCRIPTION	02 OBSERVED (DATE:)	POTENTIAL	☐ ALLEGED
C1 [J M. UNSTABLE CONTAINMENT OF WASTES (Strike: runoff:standing liquids/heaking drums) 03 POPULATION POTENTIALLY AFFECTED:	02 OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	POTENTIAL	□ ALLEGED
01 (. N. DAMAGE TO OFFSITE PROPERTY 04 NAHRATIVE DESCRIPTION	02 🗆 OBSERVED (DATE:)	D POTENTIAL	□ ALLEGED
01: 10. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs to 4 MARRIATIVE DESCRIPTION	02 () OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
01 : FP ILLEGAL/UNAUTHORIZED DUMPING 04 HARRATIVE DESCRIPTION	02 CI OBSERVED (DATE:)	D POTENTIAL	1 ALLEGED
95 LECCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEC	GED HAZAROS		
III. 101AL POPULATION POTENTIALLY AFFECTED:Se	e Attached .		
All reactor fuel has been removed f site has been drained, but heavy wa decommissioning of the site is pend	ter residuals do remain.		
V. 4 MINUES OF INFORMATION (Che speudic references, e.g. state thes	sample analysis, reports)		
(1) 1986 Annual Site Environmental Re 87-9) by N. Golchert and T. Duffy (2) Phase I CERCLA Program, ANL-IL In order 5480.14), July 1986.	•		

CONTINUATION SHEET

Part 3 - Description of Hazardous Conditions and Incidents

ANL-IL 1L 3890008946

Building 330, CP-5

III. Total Population Potentially Affected

39,000 (3.000 employees plus 36,000 residents within three miles) (Ref. (1) p. 8).

V. Sources of Information (Continued)

- (3) 1988 Inventory of Federal Hazardous Waste Activities (for ANL-IL).
- (5) ANL-IL Intra-Laboratory Memo; S. Y. Tsai to N. W. Golchert; Subject: Groundwater Monitoring Plan for the 317-319 Area; September 17, 1985.
- (6) Site Plan (ANL-IL Map), January 9, 1986.
- (7) ANL Map with PA legend, April 1988.
- (28) Environmental Assessment Related to the Decontamination and Decommissioning of the Argonne National Laboratory CP-5 Research Reactor; by ANL-IL, January 1982, p. 1-3.

Summary Report for Preliminary Assessment of the ANL-IL

Building 330, CP-5

4/13/88

The shutdown CP-5 research reactor, which operated at 5 megawatts as a neutron source for research, is a potential source of environmental contamination pending decommissioning. The reactor fuel has been removed but irradiated heavy water residual causes tritiated water vapor release through the exhaust stack. The calculated fenceline dose from this release is less than .1% of the EPA standard for public exposure. The radioactive components stored in the CP-5 yard and in underfloor storage tubes are also a potential source of contamination.

Recommendations: (1) Conduct additional monitoring to assess the potential for groundwater contamination.

- (2) Complete a Site Investigation (SI).
- (3) Continue to request DOE funding for decommissioning (or partial decommissioning).